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Clinicopathologic study of resected, peripheral, small-sized lung cancer tumors, 1 cm or less in diameter, and their long-term results after surgeryTogashi, Ken-Ichi*Nagaoka Red Cross Hospital, Nagaoka-shi, Japan*

Objective: The number of interventions for very small-sized lung cancer has increased with the development of computed tomography for medical checkup. We attempted to identify the clinicopathologic characteristics of peripheral, very small-sized lung cancer and their long-term results after surgery.

Methods: A retrospective analysis of 1245 patients who underwent complete resection for lung cancer between 1981 and 2004 in our hospital was performed. Sixty-two patients (5%) had tumors 1 cm or less in diameter (Group S) and 217 patients (17%) had tumors 1 to 2 cm in diameter (Group L). The probability of survival was calculated using the Kaplan-Meier method.

Results: All diseases were detected by medical checkup in both groups. 53% of Group S patients and 31% of Group L patients were not diagnosed definitively with lung cancer before surgery. In Group S, preoperative definitive diagnosis was obtained by CT-guided needle biopsy for 22 patients or by transbronchial lung biopsy for seven patients. The histologic type of adenocarcinoma was found in 49 patients (79%) in Group S and 173 patients (80%) in Group L. Other histologic types included squamous cell carcinoma, large cell carcinoma, small cell carcinoma, carcinoid, and others in both groups. Fifty-seven patients (92%) in Group S and 165 patients (76%) in Group L showed pathologic stage IA. In Group S, the other stages were two IB, one IIA, and two IIIB. There were 14 bronchioloalveolar carcinomas (26% of IA diseases) in Group S and 22 (13% of IA diseases) in Group L. The 5-year survival rates of IA patients were 90% in Group S and 80% in Group L. The 5-year survival rate of 36 bronchioloalveolar carcinomas in both Groups S and L was 94%. The 5-year survival rate of the patients with tumors 2 cm or less in diameter (Group S + L) was 86% after lobectomy or pneumonectomy, and 77% after wedge resection or segmentectomy, while the 5-year survival rate of patients with tumors 1 cm or less in diameter (Group S) was only 91% after lobectomy or pneumonectomy, and 90% after wedge resection or segmentectomy. Postoperative deaths from various causes were four in Group S and 28 in Group L, but deaths from cancer recurrence were one in Group S and 10 in Group L. There were no deaths in patients with bronchioloalveolar carcinoma.

Conclusion: Patients in Group S showed better prognosis than those in Group L, and their 5-year survival rate was good following partial resection or segmentectomy as well as lobectomy or pneumonectomy, therefore, we might define peripheral, small-sized lung cancer tumor of 1 cm or less in diameter as peripheral early cancer. The further spread of computed tomographic screening is essential for the early detection of peripheral, small-sized lung cancer tumors of 1 cm or less in diameter.

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Clinico-pathological features of resected lung cancer in Niigata prefecture: registry report of 3306 cases during 5 yearsTsuchida, Masanori¹ Koike, Teruaki² Togashi, Ken-Ichi³ Watanabe, Takehiro⁴ Yazawa, Masatomo⁵ Hayashi, Jun-Ichi¹

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Background: It is important to understand the present characteristics of lung cancer patients. However, it is difficult to obtain updated information regarding lung cancer surgery. Since 2001, Niigata Chest Surgery Study Group has begun registration of lung cancer surgery to determine statistics regarding lung cancer surgery underwent in Niigata Prefecture. Here we summarize the clinico-pathological features of 3306 resected lung cancer performed during 5 years.

Method: We registered patients who underwent surgical resection for only primary lung cancer.

A total 31 medical data for each patient were registered. Registration was by mail to the data center after the histological diagnosis and pathologic features were known.

Result: A total of 3306 patients were registered in Niigata Prefecture in 5 year periods. A total of 1650 (50%) cases were detected by mass screening, only 14 % patients were symptomatic, and 35% patients were detected during other diseases. With spread of lung cancer screening using computed tomography, increasing number of small and cloudy nodules have been detected. In 64% cases, diagnosis of lung cancer was established by bronchoscopy and percutaneous lung biopsy. 2129 cases (64 %) were diagnosed as lung cancer preoperatively. The 2169 males and 1137 females had a mean age of 68.1 years. The peak age was 70's followed by 60's. In most cases, clinical stage was evaluated by chest and abdominal computed tomography, brain magnetic resonance imaging, and bone scintigraphy.

Mean tumor diameter was 3.0 cm. 60% patients were diagnosed as having T1 tumor and over 80% patients did not have lymph node metastasis. 85% patients were diagnosed as clinical stage I.

There were 1963 c-stage IA cases (59%) and 863 c-stage IB cases (26%). The most common operative procedure was single lobectomy in 2266 cases (69 %), followed by wedge resection in 469 cases (14 %), segmental resection in 325 cases (10%). Pneumonectomy was performed in only 50 cases (1.5%). The tumor was histologically classified as adenocarcinoma in 70.5% patients, squamous cell carcinoma in 22.6%.

According to the pathological classification, 53% patients were stage IA, 21% were stage IB.

Therefore 73 % patients were classified as pathological stage I. Post-operative complications were also reported in our registry. Complication was defined as any events that required unscheduled treatments. There was 425 complications out of 2569 cases during 4 years. Air leakage was the most common complication followed by pneumonia, arrhythmia, and respiratory failure. Complications increased as patient's age increases. The age of the patients who developed complications was significantly higher than that of the patients without complications. Multivariate analysis revealed that male, high age, and patients detected during other disease are significant factors for developing complication. Operative mortality in our registry was 0.9% and was less than that from national registry.